

6
From the Author.

4

SOME OBSERVATIONS

ON THE

TEGUMENTARY DIFFERENCES

WHICH EXIST AMONG

THE RACES OF MAN.

BY

ROBERT DUNN, F.R.C.S., F.E.S.,

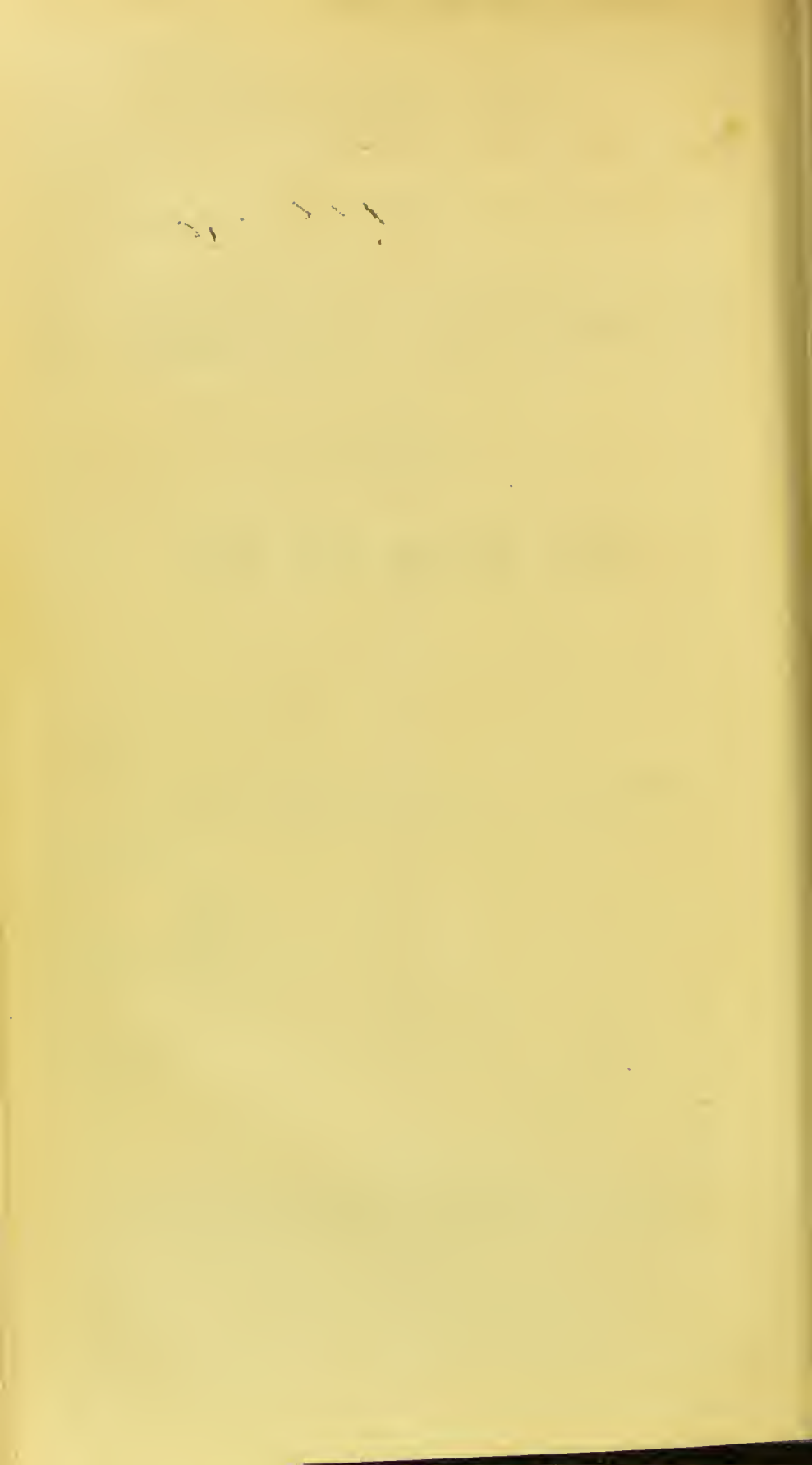
ETC.



LONDON :

PRINTED BY T. RICHARDS, 37, GREAT QUEEN STREET.

M.DCCC.LIX.



*From the Transactions of the
Ethnological Society of London*

ON THE TEGUMENTARY DIFFERENCES,

ETC.

IN a former communication to this Society—"On the varying forms of the Human Cranium, viewed in connexion with the outward circumstances, social state, and intellectual condition of man"*—I avowed the conviction that, to my mind, the evidence is irresistible, which is furnished by anatomy, physiology, and psychology, that the *genus* HOMO is one; and, taking the three typical forms of the skull, the prognathous, pyramidal, and oval, I adduced some direct historical evidence in proof of the fact of the conversion of one type into that of another, under the varying influence of outward circumstances and civilized states.

On the present occasion, and in support of the same conviction, I beg to solicit your attention to some observations on the tegumentary differences which exist among the races of man, but from which it has been attempted to draw a very opposite conclusion, and to establish the position that these tegumentary

* Published in the Journal of the Ethnological Society, vol. iv, p. 33.

differences may be adduced to prove that the varieties in the races of the great family of man are not derived from one and the same species, but from distinct original stocks. I need scarcely say, that the colour of the skin and the character of the hair are the points at issue. It was long supposed that there existed in the tegumental covering of the Ethiopians a specific structure—the *rete mucosum*—which was the source of their blackness, and that this structure was wanting in the fair skinned races of man. Not many years ago even so great and eminent a physiologist as M. Flourens, in France, was led to believe that he had discovered, in the *rete mucosum*, such structural peculiarities or differences among the fair skinned, the red, and the black races of man, as to warrant the conclusion that they were so many distinct original species. But the revelations of the microscope on this, as on some other disputed points in physiology, have dispelled all the obscurity and doubt in which the subject was enveloped. They have clearly shown, beyond controversy, “that there exists no distinct colouring layer, as a peculiar specific structure, either in the fair or dark skinned races; that the *rete mucosum* is nothing more or less than the latest formed layer of the epidermis, the inner surface of which is continually being renewed as the exterior is worn away;” and that the peculiar hue of the dark skinned races unquestionably depends upon the presence of colouring matter in the pigmental cells of the epidermis itself,—thus and at once demolishing both the hypothesis of Flourens and his conclusions.

But it may be well for us here to pause for a moment, and to consider more minutely, under the light which microscopic investigation has thrown upon the subject, the structure of our tegumentary covering—the skin. Under the impression that all who are present may not be familiar with the subject, I need offer no apology for the adoption of the course I am pursuing, nor for the following details, with which every physiological inquirer is so well acquainted.

The common integument, or investing membrane of the body, consists essentially of two distinct layers or structures. An inner one, the corion, cutis, or true skin; and an outer, the epidermis, cuticle, or scarf skin. Interposed between these, and closely investing the cutis, a third is described as “a basement tissue composed of simple membrane, uninterrupted, homogeneous, and transparent, covered by an *epithelium*, or pavement, of nucleated particles.”

The true skin is a sentient and vascular structure, for it is the seat of the sense of touch; whilst the cuticle, forming its protective covering over the entire superficies of the body, is

insensible and non-vascular. The cutis consists of a fibro-vascular layer, made up of white and yellow fibrous tissue, and of bloodvessels, lymphatics, and nerves. It is chiefly composed of white fibrous tissue, arranged in a reticular manner, the texture becoming very fine and close near the upper surfaces, but more open and loose below, where its larger meshes become filled with clumps of fat cells, and where it passes without any distinct line of demarcation into the sub-cutaneous tissue.

The epidermis or cuticle, the outer layer of our common integument, affording a protective covering to the cutis vera, consists of a series of flattened scale-like cells, agglutinated together in many irregular layers. When these cells are first formed they are spheroidal, and contain nuclei, with soft and moist contents, but in consequence of successive formations beneath them, they are pushed upwards, and in their progress become flattened into irregular scales, lose their nuclei, and are ultimately thrown off, in desquamation, from the surface of the body. And thus between the inner and the outer layers of the epidermis there is a marked difference; for while the deeper seated distinctly present a cellular character, the external layers are scaly. It is a matter of no difficulty to divide the cuticle in two, three, or more laminæ, or, at a certain degree of maceration, to separate the harder from the softer layers, and thus to isolate the structure termed the rete mucosum, which in reality is nothing more than the deepest and most recently formed portion of the epidermis.

Though formerly supposed to be a distinct structure, microscopic investigation has clearly demonstrated the stratum Malpighi to be only the most recently formed portion of the epidermis, whose cells are not yet consolidated by the formation of horny matter in their interior. Many of these deep cells secrete colouring matter, and are hence termed *pigmental cells*. The colour of the skin unquestionably depends upon the presence of these pigmental cells, and the particular tint of the pigment which they secrete. Pigmental cells may, and occasionally do, occur partially, under varying circumstances, among the white races of man; and sometimes among the coloured races they are found wanting, so that the fair skin of the European may present itself in the offspring of the red man or the negro.

Dr. Hutchison, in the *American Journal of Medical Science* for January, 1852, relates a very curious example of change of colour in a negro, on unquestionable authority. "The subject, a negro slave in Kentucky, aged forty-five years, was born of black parents, and was himself perfectly black until twelve years of age. At that time a portion of the skin, an inch wide,

encircling the cranium just within the edge of the hair, gradually changed to white; also the hair occupying that locality. A white spot next appeared near the inner cavities of the left eye; and from this the white colour gradually extended over the face, trunk, and extremities, until it covered the entire surface. The complete change from black to white occupied about ten years; and, but for his hair, which was crisp or woolly, no one would have supposed at this time that his progenitors had offered any of the characteristics of the negro, his skin presenting the healthy vascular appearance of that of a fair complexioned European. When he was about twenty-two years of age, however, dark copper-coloured or brown spots began to appear on the face and hands; but these have remained limited to the portions of the surface exposed to light. About the time the black colour of the skin began to disappear, he completely lost his sense of smell; and since he has become white, he has had measles and whooping-cough a second time.”—Dr. Carpenter’s *Human Physiology*.

While upon this part of our subject, it may be as well to advert to that appendage of our tegumentary covering, the hair, the character of which has been invested with such undue importance, as to be made the test or criterion of a specific difference in the races of man. The African nations have been emphatically and collectively called woolly haired; but here again the revelations of the microscope have clearly demonstrated that the hair of the negro is not wool, and that in its intimate and essential structure, its sole difference from that of our own consists in having a greater abundance of pigmentary matter contained in its interior. Even in this country and among ourselves, it is no uncommon thing for persons of jet black hair, but of whom the bare idea of the slightest admixture of negro blood cannot for a moment be entertained, to have not only the peculiarity of a greater quantity of colouring matter, but sometimes also to present the African characteristic—hair so crisp and so frizzled as almost to deserve the epithet of woolly. Now the characteristic differences in the structure of the hair and that of wool, as revealed by the microscope, have been admirably pointed out by our great ethnologist, Dr. Prichard.

The hair, like the epidermis, is a beautifully organized structure, and maintains a vital, though not a vascular connexion with the body; for, under the sudden influence of a depressing passion, the whole of the hair of the head has been known to turn grey or of a silvery whiteness in the course of a single night. A hair consists of the bulb or root, the shaft or stem, and the point. In it we distinguish two elementary parts, a cortical or investing substance, of a fibrous horny texture, and

a medullary, or pith-like substance, occupying the interior. The hair expands at the base of the shaft into a bulbous enlargement, and this is lodged within a follicle formed by a depression of the cutis, and lined with a continuation of the epidermis. The whole tissue of the hair is derived from epidermic cells developed at the base of the follicle, which is itself extremely vascular. When the surface of the hair is examined by the microscope, it is seen to be covered with a coating of finely imbricated and flattened cells or scales, their edges forming delicate lines upon the surface of the hair, which are sometimes transverse, sometimes oblique, and sometimes apparently spiral. Within the scaly covering is the fibrous substance, which is translucent, with short longitudinal opaque streaks of darker colour intermixed; it is made up of straight, rigid, longitudinal fibres, and these, when separated, are found to be flattened, broad in the middle, and pointed at each end, with dark and rough edges. Professor Kölliker has shown that the colour of this portion of the hair is due not only to the presence of pigmental granules, either collected into patches, or diffused throughout its substance, but also to the existence of a multitude of *lacunulæ* containing air, which cause it to appear *dark*, by transmitted, and *white*, by reflected light.

The medullary portion occupies the centre or canal of the stem, and ceases towards the point. It is altogether wanting in the fine hair scattered on the general surface of the body.

Now wool, when examined under the microscope, exhibits filaments twisted and matted in all directions,—the shafts of the filaments not keeping a uniform calibre, but are thickened here and there, and often swelled with the appearance of knots. “The fibre of Merino wool,” says Dr. Prichard, “assumes a ribbandlike form with *serrated* edges. When the fibre is viewed as an opaque object, the serrations are found to result from a structure resembling a series of inverted cones, encircling a central stem, the apex of the cone being received into the base of the superior one; each cup-like cone having indented edges directed from root to point. But hair, on the contrary, although covered with scales or rugosities, has no serrations or tooth-like projections.”

To Mr. Youatt belongs the honour of discovering that the *felting* property of wool is dependant upon the *serrated character* of its fibre, and of pointing out that this *serrated character* constitutes the peculiar and diagnostic distinction between wool and hair.

“I have seen and examined,” says Dr. Prichard, “the filaments of hair belonging to different races of men, and compared them with the filaments of wool. Hairs of a negro, of a mulatto,

of Europeans and of some Abyssinians, were, together with the wool of a South-down sheep, viewed both as transparent and opaque bodies. The filament of wool had a very rough and irregular surface, though no serrations, distinctly so termed, were perceptible. The hair of the negro, which was extremely unlike that of wool, and of all the other varieties mentioned, had the appearance of a cylinder with smooth surface; they all appeared, more or less, filled with dark colouring matter, which, however, did not entirely destroy their transparency. The Abyssinian hair was very dark, but so far diaphanous, that a ribbandlike band appeared running down through the middle of a cylindrical tube; and the mulatto hair resembled the Abyssinian in this respect. The filament of European hair seemed almost entirely transparent; it had the appearance of an empty tube, coated internally with something of a dingy or dusky colour, which only prevented it from being quite pellucid. The negro has *hair* properly so termed, and not *wool*. One difference between the hair of the negro and that of an European is, that the former is more curled and frizzled, and another difference is the greater quantity of colouring matter or pigment in the hair of the negro; and it is very probable that this quality is connected with the former, and is its cause, though we cannot determine in what manner the one depends upon the other.”*

According to Vauquelin, the colour of the hair depends on the presence of a peculiar oil in the pigmental cells, which is of a sepia tint in dark hair, blood red in red hair, and yellowish in fair hair.

We may now proceed from the colour of the hair to the consideration of that of the skin; and of the influence of light and warmth in generating colouring matter in the pigmentary cells of the epidermis, we have a familiar illustration in the tanning of the face and the summer freckles from exposure to the rays of the sun. Many and various, we all know, are the expedients adopted by the fair portion of the creation, during a summer's sojourn, under a scourging sun, at the sea side, to guard against the production of such effects from the solar rays.

But, independently of the influence of light and heat, and from morbid or other causes within the body itself, it is no uncommon thing to meet with coloured portions of the skin, and of this we see a daily instance in the colour of the areola of the nipples of the breast during the period of pregnancy.

It is, however, a matter of common observation, and not without significance, that fair skins, from exposure to the sun's

* Prichard's "Natural History of Man", p. 101.

rays, assume a reddish brown tinge ; whilst others, amongst whom there previously existed any shade of a dark or swarthy tinge, become of a still more swarthy hue.

Now the remark is significant, inasmuch as we clearly perceive the influence of light and warmth is modified by the complexion of the individual ; but then it is not to be forgotten that the complexion itself is sensibly liable to variation within the limits of families, and, as a matter of course, far more so of races. On this point, I need only appeal to common observation,—How often, in the same family, among children of the same parents, do we not see one a *blonde* and another a *brunette*.

But before entering more fully into the consideration of the influence of physical causes—of climate and geographical position—in modifying the colour of the tegumentary covering, I would, and as briefly as possible, advert to the varieties of hue and complexion which are found to prevail among the typical races, so that we may be enabled to form a better and a truer estimate of the value of the colour of the skin, as a characteristic test or criterion of the type of the race with which it may happen to be associated.

And, first, let us advert to the highest—the Caucasian race, with which we are accustomed to associate a fair skin and a ruddy complexion. A brief survey will be sufficient to satisfy us that among the Syro-Arabian and Indo-European nations—the two great groups into which this race is divided—there exists every variety of hue and complexion. To the Syro-Arabian group belongs the Hebrew nation, which has spread itself nearly over the whole habitable globe. Now, while the Jews are still generally recognisable by certain peculiarities of physiognomy, we find among them, in this great metropolis, great variety of complexion. In this country generally, “blue eyes and flaxen hair are not uncommon, but a light brunette hue, with black hair, is most common. In Germany and Poland the ordinary complexion is more florid, with blue eyes and red hair. On the other hand, the Jews of Portugal are very dark, whilst those who have been settled from very remote times in Cochin and the interior of Malabar, are so black as not to be distinguishable by their complexion from the native inhabitants. Now, in the face of these facts, how can we avoid the conviction that the complexion of the Jews tends to assimilate itself to that of any nation in which their residence has been sufficiently prolonged ? It is a curious circumstance, that there is at Mattacheri, a town of Cochin, a particular colony of Jews, which arrived, at a comparatively late date, in that country, and which are called Jerusalem or white Jews.”

Again, in the Indo-European group of nations, we have most

striking examples in the variation of the colour of the skin ; for the complexion of the Hindoo does not less differ from that of a Scandinavian than does that of the Negro ; there exists every shade of gradation interposed between the fair hair and blue eyes of the inhabitant of Northern Europe and the jet black of the dweller in the plains of India. Among the Hindoo nation alone, we meet with the most marked diversities of complexion ; some are black as negroes, some are of a copper colour, others little darker than the inhabitants of Southern Europe, and others have actually fair complexions, with blue eyes and auburn or even red hair. "These diversities," it has been justly observed, "appear to be connected with two sets of conditions as their operating causes. The first place must be assigned to the marked differences of climate which prevail betwixt the mountainous elevations of Kashmir, or Kafiristan, and the low plains bordering the great rivers in India. But the distinction of castes is scarcely of secondary consequence, since it perpetuates the same mode of life in particular families from generation to generation, and also tends to render permanent any variety that may spontaneously spring up and restrain it within the limits of the caste in which it occurs. The high caste people of the northern and more elevated parts of India are remarkable for the fairness of their complexions ; while the Affghans, descended from the Median stock, and speaking a dialect derived from the ancient Zend, contain within their passes every variety of complexion, from that of the dark Indian to that of the fair European." In fine, it may be truly said of the Caucasian race, whatever we may assume to be its typical complexion, that that type is subject to every kind and degree of modification.

2ndly. Among the Mongolian nations we meet with a like variety of complexions. It must be admitted, that a certain admixture of a yellow hue is one of their most constant characters, but even this is found to entirely disappear.

Lieutenant-General Briggs, to whom we are so much indebted for the valuable papers which he read before this Society on the Aboriginal Tribes of India, and who has had printed (published ?) two lectures which he delivered before the Royal Asiatic Society, has fully established the fact that the aborigines of India are of Seythian origin—Mongolian,—while the Hindoos, of the Caucasian race, came from an opposite direction. The General rejoices in finding that Mr. Hodgson, the late president at Nipal, while labouring on the spot among the Himalaya mountains, has arrived at the same conclusions as himself.

"It is to me," he says, "a source of singular gratification

that my views should so entirely coincide with those of a philosopher who has devoted so much of his life to researches of this nature. He is of opinion that there is an identity both in physiognomy and philology of the several aboriginal races of India which, while it stamps them of one stock, distinguishes them from the Arian race. He declares his conviction that all the aborigines of India are north men of the Seythic stem, but he hesitates to pronounce positively from which of the three great branches they are derived. His opinion, however, inclines him to think that all those who are found on the east of the river Dhansri, in Assam, belong to the Chinese; while those on the west, which include all I have described, belong to the Thibetan branch. Of these he speaks decidedly. The aborigines of India are all of the Tamilian family; they are, says he, now for the most part British subjects. They are counted by millions, extending from the snows to the Cape (Comarin). Yes, in every hilly or jungly tract there exist hundreds of thousands of human beings not materially different from the Germans, as described by Tacitus. These primitive races are ancient heritors of the whole soil, from all the rich and open parts of which they were driven by the usurping Hindoos.”*

Now among these aborigines of India, the northern Asiatics, and still existing in the hilly regions of the north, in the Deccan, and especially in Ceylon, there is found considerable variety of complexion even within the limits of the same nation. “The Cingalese,” says Dr. Davy, “vary in colour from light brown to black; the prevalent hue of their hair and eyes is black, but hazel eyes and brown hair are not uncommon; grey eyes and red hair are occasionally seen, though rarely; and sometimes the light blue or red eye, and light flaxen hair, of the Albino.” Dr. Davy, in describing such a one, remarks, that “her complexion would scarcely be considered peculiar in England, certainly not in Norway, for her eyes were light blue, not particularly weak, her hair of the colour that usually accompanies such eyes, and her complexion rather rosy. It is easy to conceive,” he adds, “that an accidental variety of this kind might propagate, and that the white race of mankind may have sprung from such an accidental variety. The Indians are of this opinion; and there is a tradition or story among them in which this origin is assigned to us.” This tendency towards a fair and even florid complexion, with light blue eyes and bushy hair, can be traced in several other nations of the same type, such as the Mantehoos in China,

* Vide “Two Lectures on the Aboriginal Races of India, as distinguished from the Sanseretic or Hindu Race.” By Lieut.-Gen. Briggs. Delivered before the Royal Asiatic Society, May 8th, and June 15th, 1852.

and also among the Chinese themselves. On the other hand, the hardy Samoiedes, Tungasians, and others living on the borders of the Icy Sea, have a dirty brown or swarthy complexion. A scantiness of hair is generally found in the Mongolian type, but there are affiliated tribes whose hair and beards are long and bushy.

In my former communication on the varying forms of the cranium, I adduced, in illustration, the case of the Magyars—the nobility of Hungary,—a handsome people, of fine stature, of European features and complexions, and inferior to none in their physical and mental endowments; and yet there is both historical and philological evidence to prove that they are a branch of the great northern Asiatic stock, and closely allied in blood to the stupid and feeble Ostiaks and the untamable Laplanders, of a dirty brown and swarthy hue. Again, if the views of Mr. Norris be confirmed, they point to the fair Circassian and Georgian nations as being but an improved race of the Mongolian type.

3rdly. Among the Ethiopian or African nations, it has been said, no variety in the colour of the skin exists, blackness, with a reddish or yellowish tinge, being universal; but the remark is founded on ignorance. There does exist great diversity of complexion among the African races. We see in the Kafir tribes high foreheads, prominent noses, a light brown complexion, and red hair; and is the origin of the Kafir different or distinct from that of the Negro, with whom he is connected by varying degrees of affinity? The Fúlaks of central Africa are of a dark copper colour, while the Hottentots of the Cape have a large admixture of yellow. But the widest departure from the blackness of the Negro is found among the African nations who border on the Red Sea. According to M. d'Abbadie, they exhibit specialities on the one hand which approximate closely to the Negro type, while in other respects, particularly in the hue of their skin, the severance is complete; so that they evidently constitute a series of links between the Negro and the ancient Egyptian race. And here, as elsewhere, the lightest complexions and a superior physical conformation characterise the inhabitants of the highlands, whilst the dwellers on the low plains beneath the same latitudes approach nearer to the true Negroes of their neighbourhood, not merely in the blackness of their skin, but in the thickness of their lips, the flatness of their noses, and crispness of their hair. I need not remind you that the researches of Dr. Pritchard lead to the conclusion that the ancient Egyptians were so closely allied to the Negro race that the origin of both was probably the same, and that the complexion of the ancient Egyptians, as repre-

sented by their own artists, seems to have been of a red copper or light chocolate colour, and to have resembled the present complexion of the reddest of the Fúlaks and Kafirs. But instances enough, I hope, have been adduced to show that the complexion and colour of the skin is no such definite and characteristic distinction as to sever the Negro races from other branches of the family of man.

And to me it only seems necessary to take a very cursory glance at the Oceanic races—the Malayo-Polynesian—to be perfectly satisfied how futile is the attempt, where the diversities are so great and so numerous, to make the colour of the skin and the character of the hair criteria by which to distinguish these races from the other typical stocks.

And, lastly, of the American races the epithet “red men” is by no means characteristic. Some of the American Indians are copper coloured, some as fair as any Europeans, others are of a brown or yellow complexion, and others nearly, if not quite, as black as the Negroes of Africa.

After the cursory survey which I have taken, we may now return, and, I hope, better prepared, to the consideration of the operating physical causes, which exert a modifying influence upon the colour of the skin. Among the first, and by far the most important, are climate and geographical position; for it may be asserted without the fear of contradiction, that it is only in the intertropical regions, and in the countries bordering upon them, that we meet with the greatest depth of colour in the skin. All the nations inhabiting those regions exhibit a tendency to complete blackness, though it must be admitted, such a tendency, by other circumstances, may be kept in check. Next to geographical position, elevation above the sea level, and the degree of humidity in the air, are generally allowed to be the two physical conditions which exert the greatest modifying influence upon the colour of the skin. Sir R. Schomburgk and M. D’Orbigny lay great stress on the influence of the latter, humidity—and, by each, as the result of personal and independent observation on the inhabitants of the new world, it is remarked, that people who live under the damp shade of dense and lofty forests, are comparatively fair; whilst those exposed to solar heat on dry and open spaces, are of a much deeper hue. Again, it is a matter of common observation, that elevation has the same effect upon the human complexion which it has upon the growth of plants, and that the inhabitants of mountainous districts are fairer than those on the plains at their base.

It must be admitted, as I have already observed, that the influence of light and warmth are at first modified by the original

complexion of the individual, but I think that direct historical evidence abundantly proves, that a continued exposure for a sufficiently lengthened period of time, leads to one uniform result. To quote from a writer, to whom I am greatly indebted, "We have seen," says he, "that the Arab, living in the country of the negro, becomes of negro blackness; that the negro, dwelling on the banks of the Nile, presents the dark red tinge of the ancient Egyptian; that the Jew, transplanted into the northern regions of Europe, has the original swarthy complexion of his race replaced by a fair hair, and even a florid hue, whilst another offset of the same stock rivals in blackness the Hindoos among whom he dwells; that the Hindoo, when he migrates to the high lands of the Himalaya range, becomes, in process of time, as fair as the Europeans, who have come thither from the far north; that the natives proved by the affinities of language to be the descendants of the great Arian stock, which has dispersed itself through every variety of climate, admit of every variety of colour; and that equal and similar varieties of colour abound among the members of other groups of nations, as among the American and Polynesian, whose geographical distribution and linguistic affinities afford a strong presumption of a common origin. We cannot conceive that any candid person can weigh this mass of evidence without coming to the conclusion, that the most extreme differences of complexion are unsafe indications of an original distinctness of race, and that these differences owe their origin far more to the prolonged influence of external physical conditions, than to any other assignable cause."*

On the other hand, those ethnologists who maintain the doctrine of originally distinct types, are driven to the necessity of admitting not three or five merely, but twenty or upwards; there seems to be no limit to the number, for it must increase, as our knowledge extends, and we are continually hearing of tribes with whose physical characters we are little acquainted. But even admitting the theory of distinct stocks, we should expect, as a necessary consequence, that each race should be characterised by fixed and definite distinctions, common to all its sub-divisions; but, on the contrary, do we not actually find these characters becoming softened down, and all verging to one common type?

To conclude, does not the survey which we have taken force upon our minds the conviction, that the colour of the skin, and the character of the hair, are absolutely valueless as distinctive characteristics of race?

* Edinburgh Review, vol. lxxxviii, p. 458.

The more closely and carefully we study the typical races, and the effects of climate and position on their geographical distribution, the more we are constrained to admit that tegumentary differences present to us no impassable barrier against the conclusion, that all the existing varieties of the great family of man are derived and descended from a single stock. On the contrary, does not the conviction become irresistible for the unity of the human species, when we look around us in this great metropolis, and behold, amid the "chosen people," the Hebrew nation, the descents of Abraham, every variety of complexion, from the fair-haired, rosy and ruddy faced Englishman, to the crisp and frizzley-haired, and dark and dusky countenance of the swarthy Negro.



